



# CITY OF HOUSTON WASTEWATER CONSENT DECREE UPDATE

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SERVICE DELIVERY COMMITTEE



# PURPOSE

together we create a strong foundation  
for Houston to thrive

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## 5 TO THRIVE VALUES

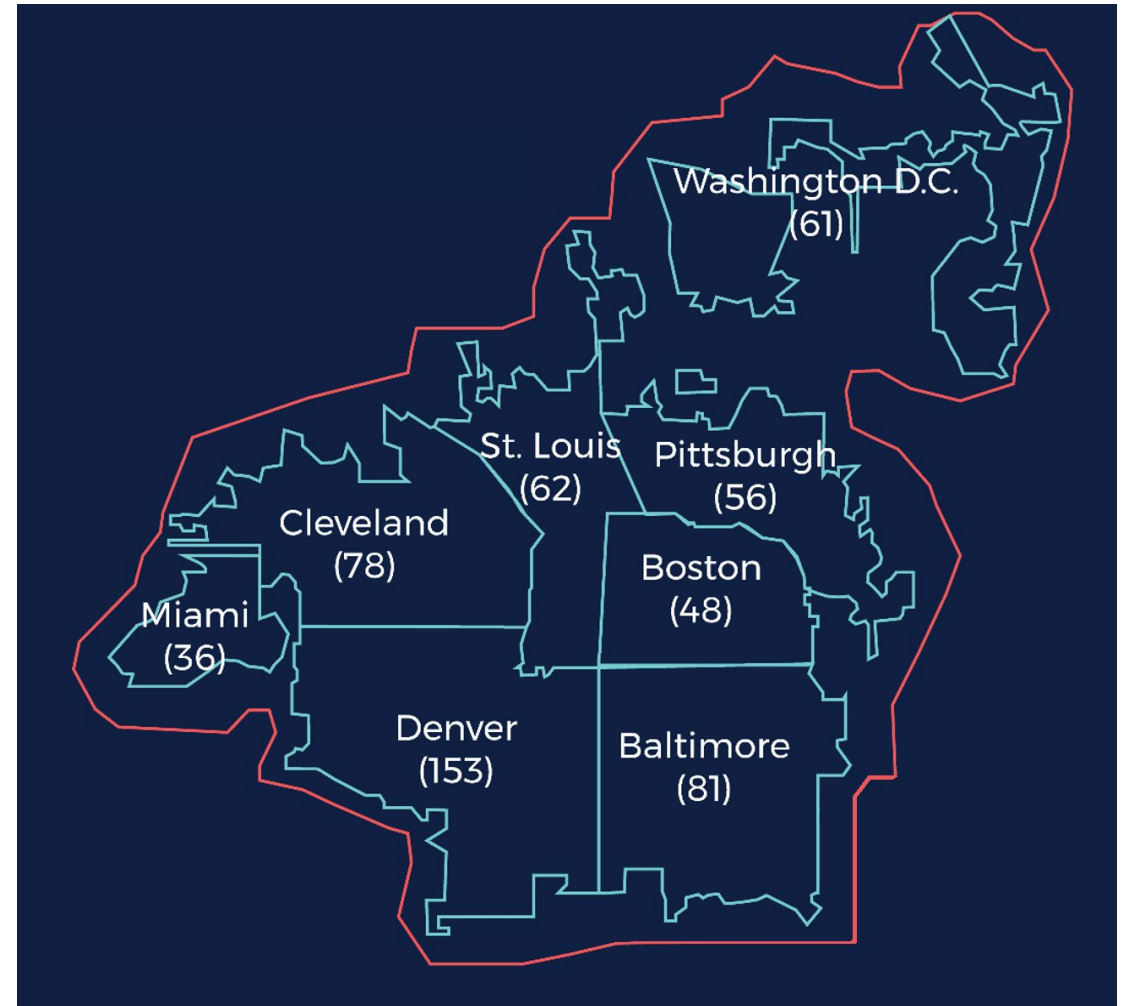
respect | ownership | communication | integrity | teamwork

# HOUSTON'S SEPARATE SANITARY SEWER SYSTEM IS THE LARGEST AND MOST COMPLEX IN THE NATION

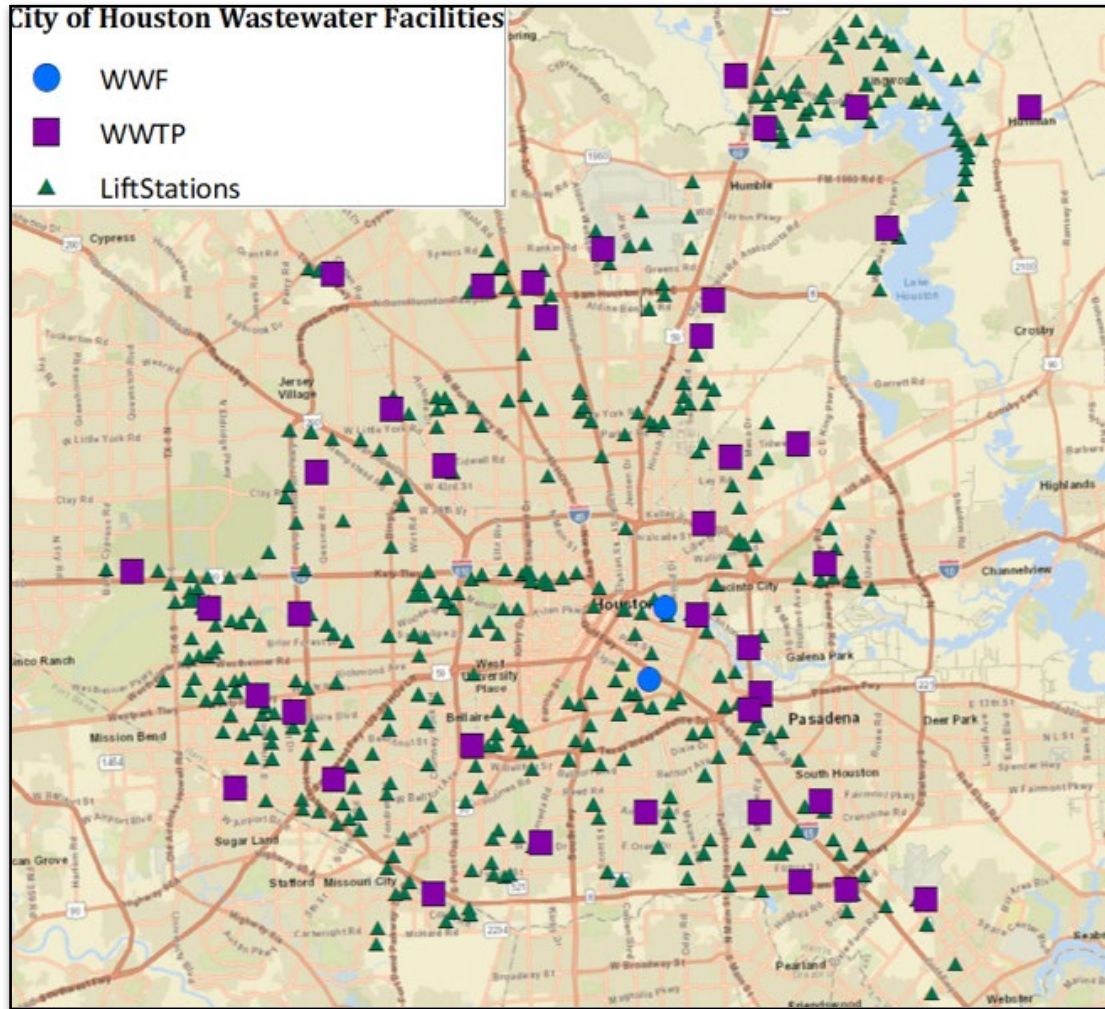
The land area of all these cities COMBINED would fit within our service area:

- Baltimore
- Boston
- Cleveland
- Denver
- Miami
- Pittsburgh
- St. Louis
- Washington D.C.

**Houston Wastewater and Water Service Area: 589 sq. mi**



# HOUSTON'S WASTEWATER INFRASTRUCTURE



- 38 Wastewater Treatment Plants (WWTP)
- 2 Wet Weather Facilities (WWF)
- 376 Lift Stations (LS)
- 5,791 Miles | Gravity Sewer (Round Trip from DC to Seattle)
- 304 Miles | Force Mains (FM)
- 134,772 Manholes

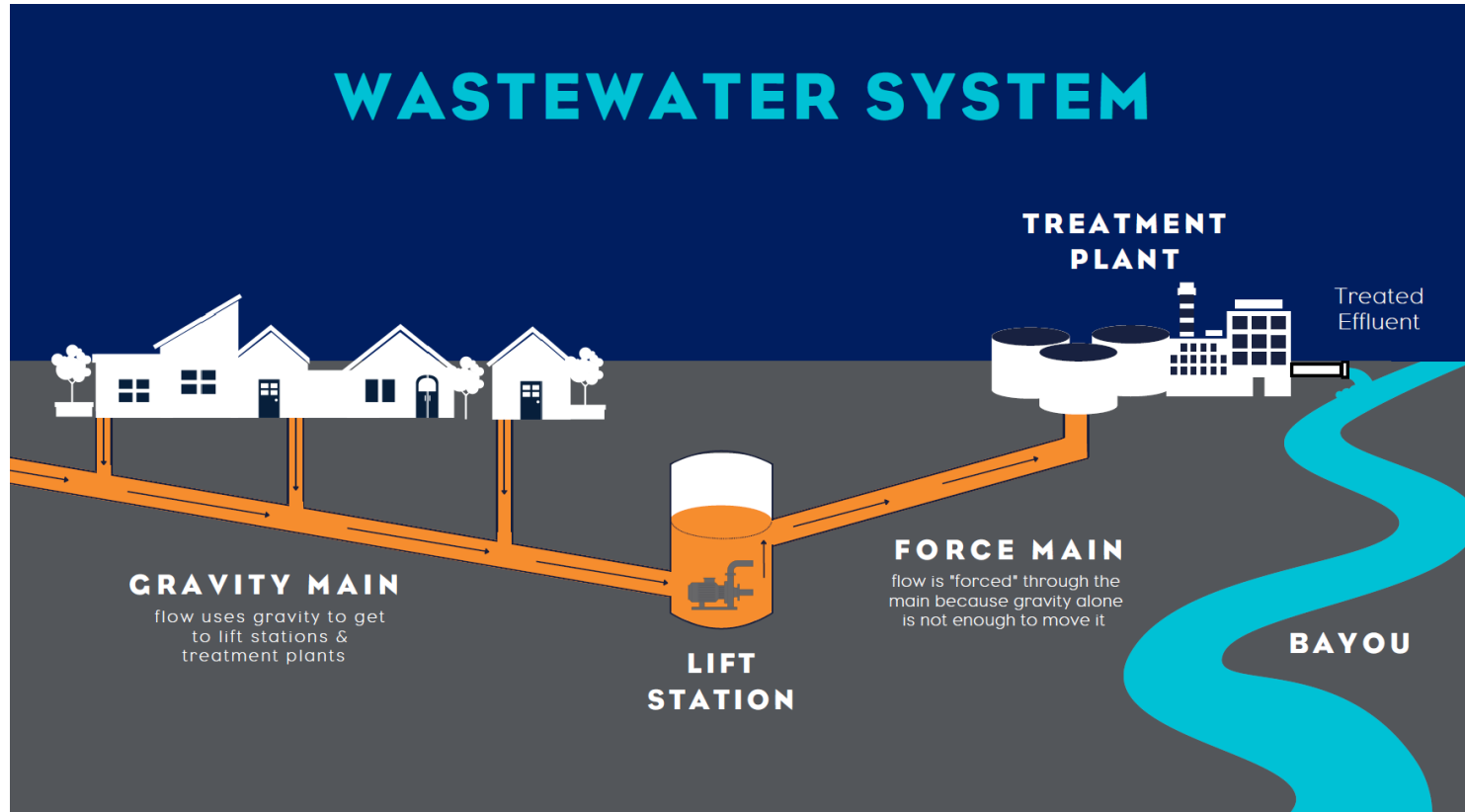
# WHAT IS A CONSENT DECREE?

- A consent decree is a legal document filed with the court, and approved by the judge, that formalizes a settlement agreement between the **City of Houston, the United States (EPA)** and the **State of Texas (TCEQ)**.
- The settlement agreement is a binding commitment that includes a schedule of work that **must be performed**, timely and completely, to improve Houston's wastewater system over the 15-year duration of the consent decree.

## HOUSTON'S CONSENT DECREE IS AN INVESTMENT IN THE CITY'S SEWER SYSTEM

- Improves system performance, better compliance and protects public health and the environment.
- Addresses deferred maintenance of system.
  - Wastewater Treatment Plants
  - Collection System

# HOW A WASTEWATER SYSTEM WORKS



- Wastewater is collected from homes and businesses and sent to a **Wastewater Treatment plant (WWTP)**. Once there, contaminants are removed and clean water is released back into the environment.
- Houston's wastewater system uses hundreds of lift stations to move wastewater to treatment plants due to the city's flat topography. This makes it more likely for pipes to experience blockages.

# HOUSTON'S SEPARATE SANITARY SEWER SYSTEM IS THE LARGEST AND MOST COMPLEX IN THE NATION

## Wastewater System Issues

### Sanitary Sewer Overflows (SSO)

- An **SSO** occurs when there is a blockage in the collection system, backing up the flow of wastewater to the treatment plant, causing it to spill out.
- **SSOs** are primarily caused by customers that improperly dispose of fats, oil and grease (**FOG**) and rags/wipes into the City's sewer system.

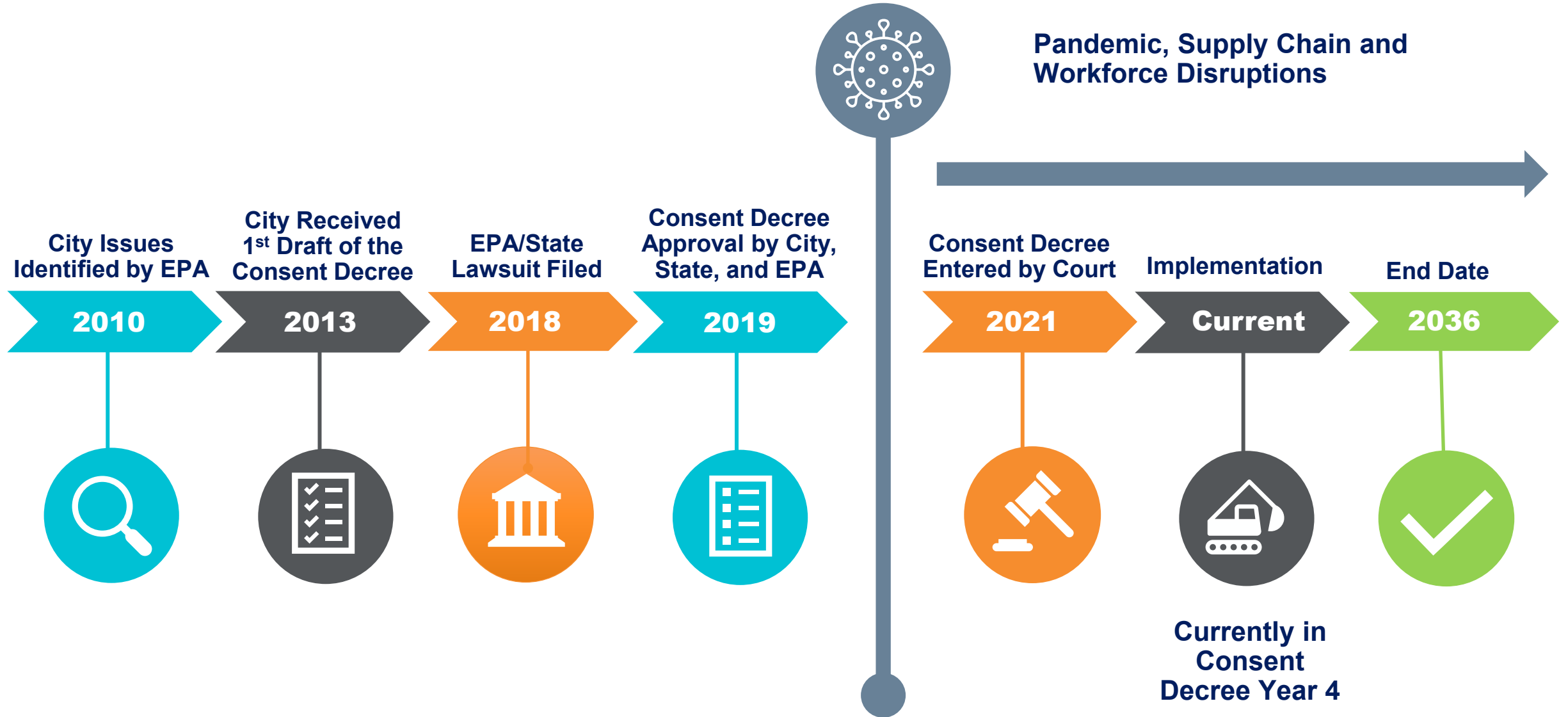
### Effluent Violations

- Treated effluent (*aka treated wastewater released into the environment*) from a **WWTP** exceeds permit limits for certain parameter(s).



Sanitary Sewer Overflow (**SSO**)

# ACTIVITY TIMELINE





# PROGRESS

CONSENT DECREE COMPONENT	KEY SCOPE OF WORK	PROGRESS
<p><b>Early Action Projects</b></p>	<ul style="list-style-type: none"> <li>• Lift station renewal and replacement.</li> <li>• Force main renewal and replacement.</li> <li>• Consolidation projects.</li> <li>• Wastewater treatment plants improvements.</li> </ul>	<p><b>On Schedule.</b> 64% of projects already complete.</p>
<p><b>Capacity Assessment and Remediation</b></p>	<ul style="list-style-type: none"> <li>• High volume or repeat <b>SSOs</b> during rainfall require hydraulic capacity assessments that that may lead to Capacity Remedial Measures Plans (<b>CRMPs</b>).</li> <li>• 9 initial areas identified in Consent Decree.</li> <li>• New Areas (10-17) have been identified.</li> </ul>	<p><b>On Schedule.</b> CRMPs for <b>10 out of 17</b> already submitted to EPA for review/approval.</p>



# PROGRESS (CONTINUED)



CONSENT DECREE COMPONENT	KEY SCOPE OF WORK	PROGRESS
<p><b>Condition Assessment and Remediation</b></p>	<ul style="list-style-type: none"> <li>Inspect and assess the condition of all gravity sewer mains, manholes, force mains, and lift stations in 10 years.</li> <li>Remediation of defective gravity mains, force mains, and lift stations.</li> </ul>	<p><b>Ahead of schedule.</b></p> <p><b>On Schedule.</b></p>
<p><b>Condition Assessment and Remediation</b></p>	<ul style="list-style-type: none"> <li>Perform operation &amp; maintenance performance evaluation (<b>OMPE</b>) in all WWTPs on 5-year cycle; perform necessary remediation.</li> </ul>	<p><b>On Schedule.</b></p>

# PROGRESS (CONTINUED)

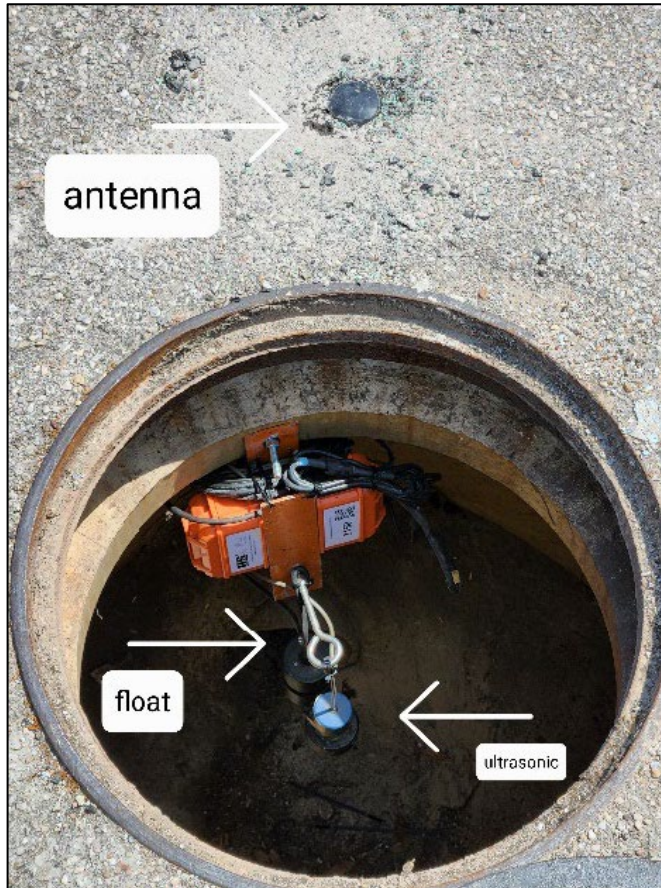
<b>CONSENT DECREE COMPONENT</b>	<b>KEY SCOPE OF WORK</b>	<b>PROGRESS</b>
<p style="text-align: center;"><b>Capacity, Management, Operations and Maintenance (CMOM)</b></p>	<ul style="list-style-type: none"> <li>• CMOM Program Plan to be submitted by Sep 30, 2022.</li> <li>• Clean/inspect 1,500 miles of gravity sewers in high SSO areas in first 2 years.</li> <li>• Clean/inspect all gravity sewers every 10 years (5,791 miles.)</li> <li>• Preventive sewer cleaning program for repeat SSO areas: 275 miles/year.</li> <li>• Continue fats, oil &amp; grease (<b>FOG</b>) program – education, inspection, and enforcement.</li> </ul>	<p><b>Complete.</b></p> <p><b>Complete.</b></p> <p><b>Ahead of Schedule.</b></p> <p><b>Ahead of Schedule.</b></p> <p><b>Ahead of Schedule.</b></p> <p><a href="http://www.protectourpipes.org">www.protectourpipes.org</a></p>

# PROGRESS (CONTINUED)

CONSENT DECREE COMPONENT	KEY SCOPE OF WORK	PROGRESS
Improve Wet Weather Flow Treatment	Pilot study of new treatment technologies	On Schedule.
Advanced Sewer System Monitoring	Install 3,000 new “smart” manhole monitors	Ahead of Schedule. (see next slide)



# SSO PREVENTION - INTELLIGENT MANHOLE MONITORS



- ✓ Generates an alert to 311 system when algorithm detects a possible blockage.
- ✓ A Service Request is created in the Infor Work Management System.
- ✓ Wastewater inspector arrives on site to investigate and create work orders for Stoppage Clearance crew to clear blockage.
- ✓ Blockage is cleared preventing an SSO.
- ✓ **639 potential SSOs prevented so far.**



# CONSENT DECREE COST

- **Total estimated cost of Consent Decree in 2019:**
  - \$6 billion
- **Total spent to date on Consent Decree:**
  - Approx. \$1 Billion (including \$2.5 million in Stip. Penalties)
- **Draft revised estimated cost of Consent Decree in 2024:**
  - \$9 billion (an increase of \$3 billion, or 50%, over the 2019 cost estimate)

# TAKEAWAYS

- The Consent Decree work is the pathway to improving system performance, protecting public health and the environment, and providing better service to the ratepayers.
- The City is on schedule or ahead of schedule with its Consent Decree requirements.
- The cost of the Consent Decree scope of work has increased post-pandemic.
- Significant progress has been made in addressing SSOs and Effluent Violations, though much more work needs to be done.
- The majority of SSOs are caused by FOG & rags/wipes that customers improperly dispose of in the sewer system.
- How you can help:
  - Promote the Protect Our Pipes campaign: [www.protectourpipes.org](http://www.protectourpipes.org)



# Thank you!



[HoustonPublicWorks.org](https://HoustonPublicWorks.org)



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